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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/576,681 | 05/23/2000 | Tenichirou Chiba | 112780-004 | 3711 |

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EXAMINER

EDMONDSON, LYNNE RENEE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1725

DATE MAILED: 11/14/2002

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,681

Applicant(s)

CHIBA ET AL.

Examiner

Lynne Edmondson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 8/22/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 3-6 is/are allowed.
- 6) ☐ Claim(s) 1, 2 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1, 2, 7 and 9-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6347454 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a laser formed mark on a semiconductor material such as a wafer, wherein the length of the dot (instant claims) or the width of the dot ('454 claim) is between 1 and 15 microns and the height of the dot is between 0.1 and 5 microns. However, the use of the mark is not disclosed.

It would have been obvious to one of ordinary skill in the art at the time of the invention that since the mark is particularly taught as a dot rather than a character or letter a circle is presumed and the length and width measurements are both measurements of the diameter of the dot. Marking an ic chip would be an obvious

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variation of the same structure on a wafer. The dot can be formed for any purpose including security or product management.

2. Claims 1, 2 and 9-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 6436842 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a laser formed mark on a semiconductor material such as a wafer, wherein the length of the dot is between 1 and 15 microns. However, the use of the mark is not disclosed and the instant claim is slightly broader as it does not teach film formation.

It would have been obvious to one of ordinary skill in the art at the time of the invention that since the dot can be used for a variety of purposes particularly product management in the semiconductor industry. Marking an ic chip would be an obvious variation of the same structure on a wafer. The dot structure is the same whether the wafer comprises a film or not.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Haddock et al. (USPN 4818852).

Haddock teaches formation of a microdot (bump) for security (col 1 lines 30-43) or product management purposes (col 1 lines 52-68) formed by a laser (col 3 lines 1-16). The data spots are less than 10 microns (dots are accommodated between the guides which are 10 microns apart, col 8 lines 20-30) preferably 2 to 5 microns in size (col 11 lines 5-20). As the mark is formed as a layer (col 9 lines 1-17) and may serve as a stop means it is presumed to have height or form a protrusion (col 10 lines 4-61). It is noted that a similarly shaped bump can be formed by other methods. See also Haddock claims 5, 6 and 10-12.

4. Claims 1, 7, 8, 10 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by O'Dell et al. (USPN 6068891).

O'Dell teaches formation of a microdot (bump) formed by a laser wherein the dot has a protrusion at the center and recessed area surrounding it (figure 4B) which has a length of 1-30 microns and a height of .001 - .050 microns for large bumps or a length of 0.5 to 1 microns and a height of .0005 to .040 microns for small bumps (col 2 lines 34-

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53) and a height of .010 to .080 microns (15 to 85 nm, col 5 lines 26-46). Although laser forming is taught, it is noted that a similarly shaped bump can be formed by any sufficiently controllable process. The bumps can be used for any process including product management (contact start/stop region to reduce friction, col 1 lines 20-24).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruger (USPN 4847183).

Kruger teaches a dot formed on a wafer (col 1 lines 5-10) for product management (col 2 lines 1-13). The dots (33) have a length (size) of 4-25 microns (half the 8-25 micron pitch (col 2 lines 1-13) with a preferred pitch of 10 to 25 microns (col 4 lines 1-38). Figure 8 shows the dot (33) as a protrusion with a recessed periphery (30) (col 4 lines 45-60 and col 6 lines 16-25). It is noted that the method of forming the dot does not further limit the structure of the dot or give it different properties or a different shape. However, there is no disclosure of laser forming. See also Kruger claims 1-3, 11 and 15.

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It would have been obvious to one of ordinary skill in the art at the time of the invention that a similar microdot with the same the dot size, shape and structure could be formed by a variety of means and have the same properties.

7. Claims 1, 2 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (USPN 5477309) in view of Baumgart et al. (USPN 6205002).

Ota teaches a mark formed on a semiconductor device (col 1 line 15) to form a circuit pattern (col 5 lines 15-25) on a wafer for product management (alignment). Based on the pitch size (6 microns, col 7 lines 13-15) shown in figure 1 and the width (d, 0.75 microns, col 7 lines 25-30), the dot length is greater than 1 micron and less than 15 microns (col 7 lines 7-15 and figure 1). The height is presumably greater than .01 microns (10 nm) as the height is shown to be greater than the recess width (figure 3) which is about 0.7 microns. As shown in figure 7B, conventionally P is 6 microns long and the recessed area (D) is about 3 microns ($D/P = \frac{1}{2}$) making the bump 3 microns long (col 2 lines 1-13). The same structure may be used in the manufacture of semiconductors, magnetic heads and display devices (col 1 lines 10-16). Figure 1 also shows the dot as a protrusion with a recessed periphery. It is noted that the method of forming the dot does not further limit the structure of the dot or give it different properties or a different shape. The mark can be formed by an controllable means and comprise the same structure. However, there is no disclosure of how the marks are formed.

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Baumgart teaches formation of a magnetic head comprising laser formation of bumps. Although laser formation is the preferred method, bumps may be formed in any controlled manner (col 1 line 55 – col 2 line 12).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the method of forming the dot does not further limit the dot structure or use. As the same dot could be used for alignment of magnetic heads (Ota, col 1 lines 10-16), a similar process is also presumed. Laser processing would provide precise controlled formation of bumps having fine dimensions, geometrically configured for optimum optical characteristics to facilitate light detection for alignment (Ota, col 3 line 53 – col 4 line 38).

Allowable Subject Matter

8. Claims 3-6 are allowed.

9. The following is an examiner's statement of reasons for allowance: The prior art teaches parts of the method such as mask and energy density (Ichiyama, USPN 4613842) or the crystal mask, homogenizer and lenses (James, 5463200). However, there is no disclosure of a combination of a homogenized beam through a liquid crystal mask at the particular split beam energy density to form the dot. By using these precise parameters dot size, shape and pitch can be controlled.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

10. Applicant's arguments with respect to claims 1, 2 and 7-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chiba (US 2001/0006399 A1), Murokh (USPN 6429889 B1), Tanaka et al. (USPN 6160603, mask and pixels), Samsavar et al. (USPN 6267005 B1), Baumgart et al. (USPN 5981903, 5 micron dot), Chiba et al. (USPN 6144397), Takehisa et al. (JPN 06-226472 A) and Takehisa et al. (JPN 06-7971 A).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) 306-5699. The examiner can normally be reached on M-F from 7-4 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for

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the organization where this application or proceeding is assigned are (703) 305-7118 for regular communications and (703) 305-7115 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Lynne Edmondson
Examiner
Art Unit 1725

A handwritten signature in cursive script, followed by the date 11/8/02.

LRE
November 8, 2002